

EMISSIONS: Efforts to control soot and refrigerants gain support (04/02/2009)

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Efforts to take a quick bite out of global warming by making unique arrangements for two warming substances are gaining traction in domestic and international policies.

While draft climate legislation presented by House Democrats would tackle the bulk of greenhouse gas emissions with one cap-and-trade system, the bill also authorizes U.S. EPA to regulate hydrofluorocarbons (HFCs) and black carbon pollutants as unique parts of the puzzle.

"That those two particular pollutants will not be part of the cap-and-trade regime that Waxman and Markey have proposed, in this case, is actually good news," said William Snape, senior counsel with the Center for Biological Diversity, referring to the draft bill introduced by Reps. Henry Waxman of California and Ed Markey of Massachusetts this week.

Durwood Zaelke, president of the Institute for Governance and Sustainable Development, said that the provisions for "disaggregating" the climate problem would provide significant, immediate mitigation.

HFCs, a class of chemical refrigerants that are becoming more widespread as they replace substances that harm the ozone layer, are extremely potent greenhouse gases -- the most common one packs about 1,400 times the warming punch in a pound-for-pound comparison with carbon dioxide.

Meanwhile, black carbon -- particulate soot most often produced by fuel burning in diesel engines, wildfires and rural stoves -- only lasts in the atmosphere for weeks, not decades like CO₂. It is, however, the second-largest warming source in the United States and even more important abroad, and so offers fast-acting opportunities for warming reductions, said Zaelke.

Zaelke said that climate blueprints in previous years did not deal with black carbon separately. The Warner-Markey blueprint largely incorporates a black carbon bill introduced by Rep. Jay Inslee (D-Wash.) just last week and calls for U.S. EPA to propose a rule to reduce black carbon emissions and aid similar efforts internationally.

Snape noted that EPA already has the authority under the Clean Air Act to regulate both HFCs and black carbon, even without the passage of a climate bill. "We hope that this spurs EPA to begin moving now," he said.

HFCs could grow faster than expected

HFC use is expected to rise sharply in coming decades as these chemicals increasingly replace the ozone-depleting substances that are being phased out by the 1987 Montreal Protocol.

The U.N. Intergovernmental Panel on Climate Change has projected that over the next 20 years, HFCs will account for about 8 percent of rising temperatures. That proportion will increase in later decades if measures are in place to reduce carbon dioxide emissions.

But even the IPCC's calculations could be an underestimate. David Fahey, an atmospheric scientist with the National Oceanic and Atmospheric Administration, said that new projections are needed to incorporate the Montreal Protocol's accelerated schedule for phasing out ozone-depleting substances as well as rapidly growing demand for refrigerants in developing nations.

The 'unknowns' are moving in the wrong direction

Fahey and co-authors have done such a study, but he could not discuss the results before publication of the paper, which he has submitted to a research journal.

"We have a lot of unknowns, and most of them are going in the wrong direction," said Kert Davies, research director with Greenpeace, which is working with companies like Coca-Cola Co., PepsiCo, and Ben & Jerry's to develop HFC-free alternative vending machines and freezer units.

The Waxman-Markey bill establishes a separate cap-and-trade system for HFCs that would reduce their use by 85 percent after 2038.

But the question of what will replace them is still uncertain. Alternative refrigerants exist, but they are largely unapproved for the U.S. market, and existing equipment isn't necessarily configured for them, according to company executives who are working to introduce new HFC-free equipment in the United States and abroad.

U.S. EPA is charged with approving alternatives but has to evaluate safety and toxicity considerations first, said Drusilla Hufford, director of the agency's stratospheric ozone program.

Alternatives that have low climate and ozone impact, however, are in growing use throughout Europe.

Kevin Fay, counsel to the Alliance for Responsible Atmospheric Policy, a coalition of industries that rely on these chemicals, said he was concerned about the "tough" schedule for phasing down HFCs in the Waxman-Markey bill, especially given that there aren't alternatives in the market.

At the same time, said Hufford, EPA is working with the State Department to consider how and where to handle HFCs in upcoming climate and ozone treaty negotiations. Currently, the chemicals are covered in the "basket" of greenhouse gases under the Kyoto Protocol, but some

are advocating that they be separated out on the international stage, as well, and pulled within the Montreal Protocol.

Hufford said that discussions are under way to consider this idea, but that the administration has no official position yet.

Could black carbon melt the Arctic?

Climate negotiators meeting in Bonn, Germany, this week are also considering how to handle many potent non-CO₂ gases, and European negotiators have said they would like to see an international agreement to phase down HFCs at Copenhagen, according to Zaelke.

"The question is where you put your finger in the dike," said Davies.

Black carbon emissions are already responsible for half of the temperature increases measured between 1890 and 2007, according to a paper published in this month's issue of the journal *Nature Geoscience*.

In the future, black carbon emissions could rise as developing countries burn more fuels and as wildfire burning increases, said Zaelke.

Black carbon hits the Arctic region, which is already warming two times faster than the rest of the planet, particularly hard when it is deposited on snow and ice and its absorbed heat contributes to melting.

"If we want to have a chance saving the Arctic, we need to cut black carbon emissions," said Zaelke, noting that the provisions in the Waxman-Markey bill could help take a big step in that direction.

"I think what you're seeing is that the new team in town is coming out of the block with the right stuff, and it's only going to get better," he said.